

# CASE REPORTS

Refer to: Wetrich RM, Sidhu DS: Giant sigmoid diverticulum. *West J Med* 128:539-541, Jun 1979

## Giant Sigmoid Diverticulum

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GIANT DIVERTICULA of the colon are relatively rare and, unless the examining physician or the radiologist is familiar with this entity, the pre-operative diagnosis may be missed and the surgical therapy ill-timed or misdirected.

### Report of a Case

The patient was a 60-year-old man with a five-year history of lower abdominal pain increasing in severity. In the three months before admission he had had three bouts of left lower quadrant pain associated with low-grade fever which was typical of diverticulitis of the sigmoid colon. There was no melena. One week before admission rather severe abdominal pain developed which lasted for about four days before it subsided. A barium enema before admission showed a number of diverticula in the sigmoid colon and an 8 cm round collection of gas associated with the sigmoid colon which did not fill with barium (Figure 1).

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Submitted August 29, 1977.

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The patient was admitted to hospital. Findings on physical examination were not remarkable except for mild tenderness in the lower abdomen. On rectal examination there was no palpable mass. The hemoglobin value was 14.6 grams per dl and the hematocrit was 46 percent. Analysis of urine showed 10 to 15 leukocytes per high power field. The leukocyte count was 12,500 with 89 segmented cells, 7 lymphocytes and 4 monocytes.

On admission, an x-ray film of the abdomen taken on January 3, 1977, with the patient supine, showed a radiolucent, round, 8-cm structure in the pelvis (Figure 2, *Left*). A film taken with the patient upright showed an air fluid level in this radiolucent mass (Figure 2, *Right*). It was interesting to note that a previous barium enema study done in May 1974 showed only mild diverticulosis of the sigmoid. Because of the history and findings on physical examination and x-ray studies, the diagnosis of giant diverticulum of the sigmoid colon was entertained.

Surgical operation was carried out on December 7, 1976, and a giant diverticulum measuring 8 cm in diameter was identified on the antimesenteric border of the sigmoid colon. This was intimately adherent to a segment of mesentery of the terminal ileum. A sigmoid resection was then done to include the giant diverticulum and an end-to-end anastomosis was done. A segment of terminal ileum was also resected because of compromise of the blood supply secondary to the dissection. Postoperatively the patient did well and was discharged from the hospital on December 16 in good condition.

### Discussion

While Hughes and Greene<sup>1</sup> have frequently been credited for first reporting a case of giant sigmoid diverticulum, Harris, Andersen and Wolf<sup>2</sup> in their very comprehensive review point out that Bonvin and Bonte<sup>3</sup> in 1946 described a solitary air cyst attached to the sigmoid colon. Since then, more than 30 cases of so-called giant air cysts or giant diverticula of the colon have appeared in the world literature. These cases are actually

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pseudodiverticula of the colon which gradually become dilated by colonic gases trapped within the cyst presumably because of a ball valve mechanism at the neck of the diverticulum. Except for rare occasions,<sup>4-6</sup> these pseudodiverticula are not lined with mucous membrane but, because of the inflammatory reaction, are lined with fibrous tissue and granulation tissue. The giant sigmoid diverticula invariably arise from the antimesenteric border of the colon. Except for one case arising from the transverse colon,<sup>5</sup> all have involved the sigmoid. These pseudodiverticula have varied widely in size, measuring from 6 cm<sup>7</sup> to 27 cm<sup>8</sup> in diameter and except for two cases<sup>9,10</sup> they have all been solitary.

While about 45 percent of these diverticula communicate freely with the colon and fill readily with barium, in others no communication at all is found on pathological examination.<sup>11</sup>

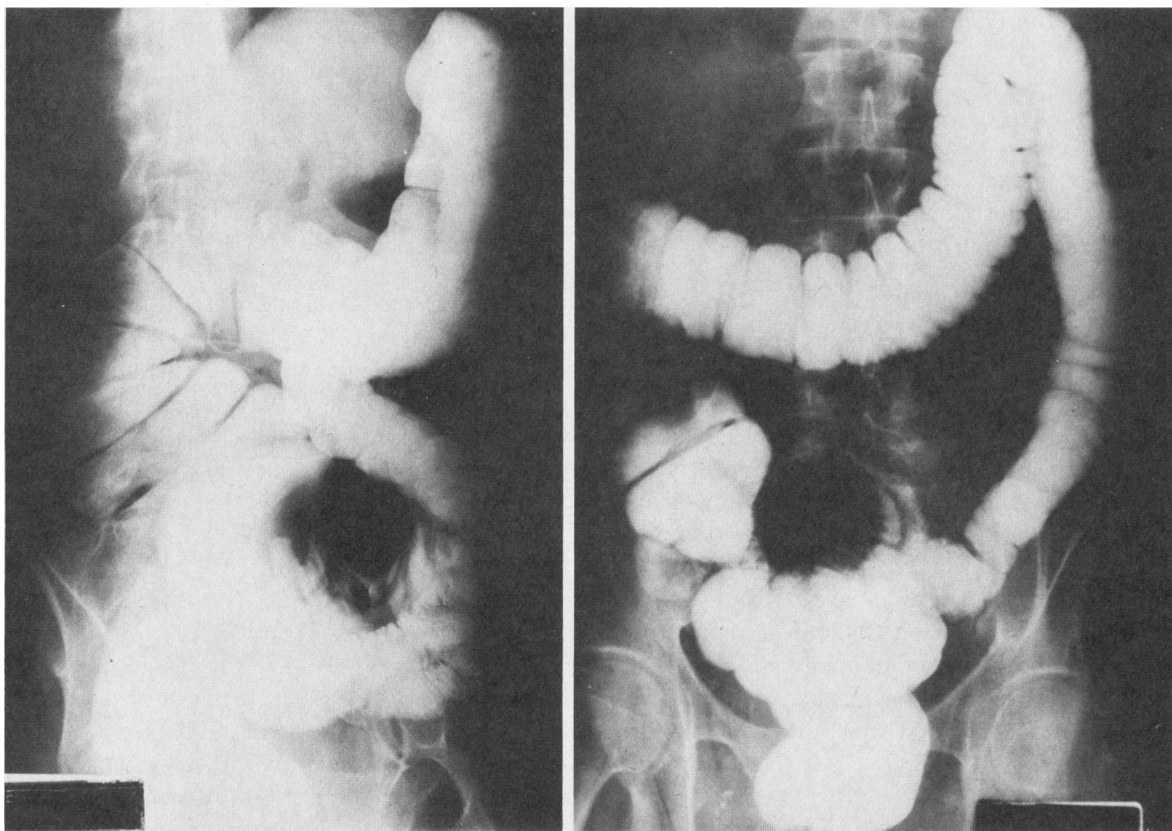
In most of these cases the patients are in the

eighth decade of life; six patients have been in their 40's. The sex distribution is about even.

Clinically such patients present with symptoms that are essentially those of sigmoid diverticulitis—that is, intermittent lower abdominal pain, constipation with occasional bouts of diarrhea and fever. Some melena has been reported.<sup>7,12</sup> Nausea and vomiting have been unusual and only one case has been reported with rupture and signs of peritonitis.<sup>13</sup> More than 80 percent of the cases are associated with a palpable mass that is usually movable and may be very tender.

The preoperative diagnosis is not difficult once the supine roentgenogram of the abdomen shows a lower abdominal air-filled lucent structure. Upright or decubitus views of the abdomen will usually show an air fluid level.

These patients have rarely presented as surgical emergencies<sup>12,13</sup> and usually there is ample time preoperatively to prepare the patient adequately.



**Figure 1.**—Two selected films from the barium enema examination performed before admission show the round collection of gas that is the giant sigmoid diverticulum intimately related to the sigmoid colon. It does not fill with barium. Several usual sigmoid diverticula are also present but these were shown better on other films of the same barium enema examination.

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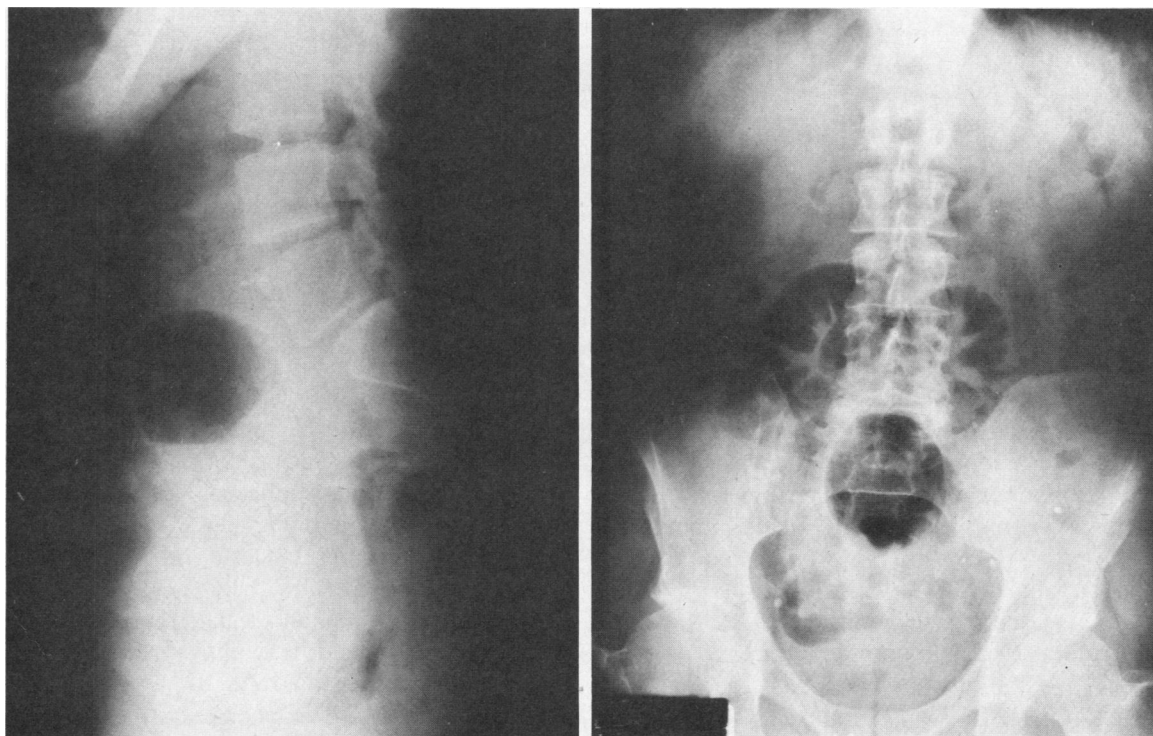
The treatment of the patients in the 35 cases reported in the literature has been quite varied. Two patients apparently were not operated upon.<sup>14,15</sup> In three patients diverticulectomies only were done.<sup>16-18</sup> In one patient diverticulectomy with a transverse colostomy was done.<sup>9</sup> In one patient there was only a transverse colostomy.<sup>13</sup> In two patients resection with colostomies was carried out.<sup>5,14</sup> In 25 cases, sigmoid resection to include the diverticulum was done.

### Summary

A 60-year-old man with a five-year history compatible with diverticular disease of the sigmoid colon was found to have a radiolucent mass in the lower abdomen on barium enema. This did not fill with barium. An upright roentgenogram showed an air fluid level in this radiolucent structure. A preoperative diagnosis of giant sigmoid diverticulum was made. A one-stage resection of the diverticulum along with a sigmoid resection was successfully carried out.

### REFERENCES

1. Hughes WL, Greene RC: Solitary air cyst of peritoneal cavity. *Arch Surg* 67:931-936, 1953
2. Harris RD, Anderson JE, Wolf EA: Giant air cyst of the sigmoid complicating diverticulitis. *Dis Colon Rectum* 18:418-424, Jul-Aug 1975
3. Bonvin P, Bonte G: Diverticules geants du sigmoide. *Seance Du* 353-355, 31 Mar 1946
4. Saha SP, Roesch CB: A giant sigmoid diverticulum: Report of a case. *Dis Colon Rectum* 15:63-65, Jan-Feb 1972
5. Sagar S: Giant solitary diverticulum of the transverse colon with diverticulosis. *Br J Clin Pract* 27:145-146, Apr 1973
6. Ferguson WH, Boinis GA: A giant diverticulum of the colon. *Med Ann D C* 35:66-68, 1966
7. Rabinowitz JG, Farman J, Dallemand S, et al: Giant sigmoid diverticulum. *Am J Roentgenol Radium Ther Nucl Med* 121:338-343, Jun 1974
8. Sibson DE, Edwards AJ: Giant gas-filled cyst of sigmoid colon: Report of a case and review of the literature. *Postgrad Med J* 48:180-184, Mar 1972
9. Kempczinski RF, Ferrucci JT: Giant sigmoid diverticula: A review. *Ann Surg* 180:864-867, 1974
10. Melamed M, Pantone A: Giant diverticula of the colon. *Arch Surg* 81:63/723-65/725, Nov 1960
11. Mainzer F, Minagi H: Giant sigmoid diverticulum. *Am J Roentgenol, Radium Ther Nucl Med* 113:352-354, Oct 1971
12. Silberman EL, Thorner MC: Volvulus of giant sigmoidal diverticulum. *JAMA* 177:782-784, Sep 1961
13. Macbeth WAAG, Riddle PR: Gas-filled abscess cavity as a manifestation of diverticulitis of the colon. *Br J Radiol* 37:861-862, Nov 1964
14. Johns ER, Hartley MG: Giant gas filled cysts of the sigmoid colon: A report of two cases. *Br J Radiol* 49:930-931, 1976
15. Rodino ED: Diverticulo gigante del sigmoides y diverticulosis colonica. *Notas Clinicas* 87:103-105, Oct 1962
16. Frankenfeld RH, Waters CH, Schepeler TV: Giant air cysts of the abdomen: An unusual manifestation of diverticulitis of the sigmoid. *Gastroenterology* 37:103-106, Jul 1959
17. Schenken JR, Cochran R: An intestinal-gas cyst, a rare complication of diverticulitis: Report of a case. *Dis Colon Rectum* 15:448-452, Nov-Dec 1972
18. Moore JM, Gold C: Giant diverticulum of sigmoid colon. *Br J Surg* 51:876-878, Nov 1964



**Figure 2.**—Left, The supine film from an abdominal series done on admission shows a well defined 8 cm in diameter, round collection of gas in the pelvis. Right, The erect film in the lateral projection shows the same air collection with an air fluid level.